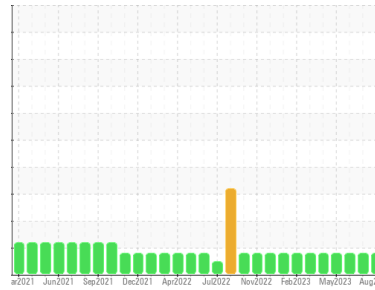


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area
Irvington
Machine Id
Unit 02 DB060102E
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 6 GAL)

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PCA0082298	PCA0082300	PCA0082296
Sample Date	Client Info	14 Aug 2023	11 Jul 2023	09 Jun 2023
Machine Age	hrs	24249	23881	23574
Oil Age	hrs	15821	15453	15146
Oil Changed	Client Info	Oil Added	Oil Added	Oil Added
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >50	12	12	10
Chromium	ppm	ASTM D5185m >4	<1	<1	0
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m	0	<1	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >9	0	3	<1
Lead	ppm	ASTM D5185m >30	9	11	11
Copper	ppm	ASTM D5185m >35	11	11	10
Tin	ppm	ASTM D5185m >4	2	2	2
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	17	21	19
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	3	5	4
Manganese	ppm	ASTM D5185m	<1	<1	0
Magnesium	ppm	ASTM D5185m	729	735	747
Calcium	ppm	ASTM D5185m	1107	1174	1178
Phosphorus	ppm	ASTM D5185m	815	868	855
Zinc	ppm	ASTM D5185m	1040	1124	1121
Sulfur	ppm	ASTM D5185m	2258	2262	2450

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >+100	2	4	1
Sodium	ppm	ASTM D5185m	6	4	7
Potassium	ppm	ASTM D5185m >20	0	2	<1
Fuel	%	ASTM D3524 >4.0	▲ 6.0	▲ 5.3	▲ 5.9

INFRA-RED

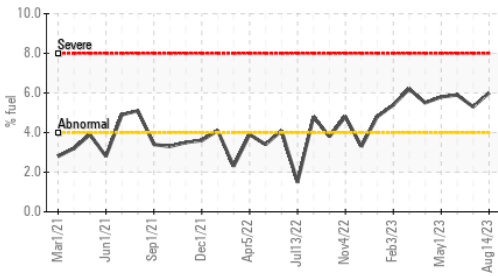
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	6.6	7.1	6.8
Sulfation	Abs/.1mm	*ASTM D7415 >30	16.1	17.0	16.9

FLUID DEGRADATION

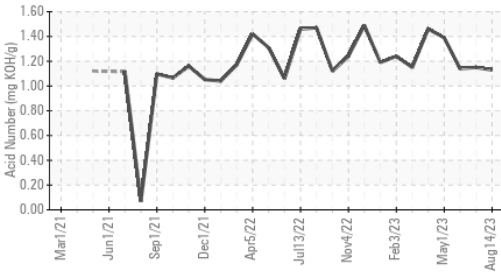
method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	10.2	10.8	10.6
Acid Number (AN)	mg KOH/g	ASTM D8045	1.13	1.15	1.14
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	11.88	10.24	9.07

OIL ANALYSIS REPORT

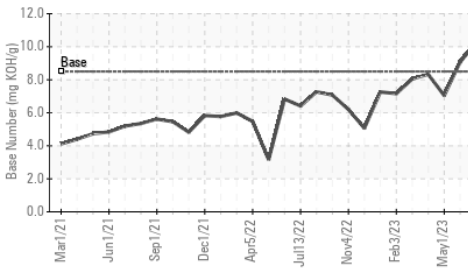
▲ Fuel Dilution



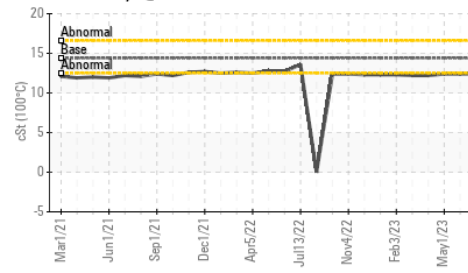
Acid Number



Base Number



Viscosity @ 100°C

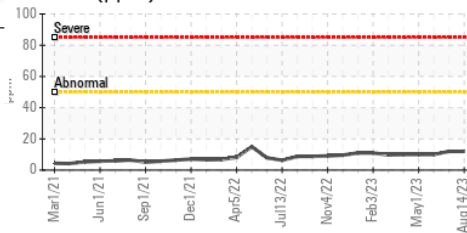


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

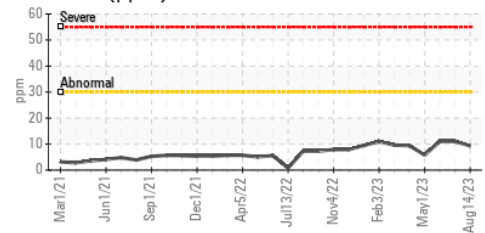
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.3	12.4

GRAPHS

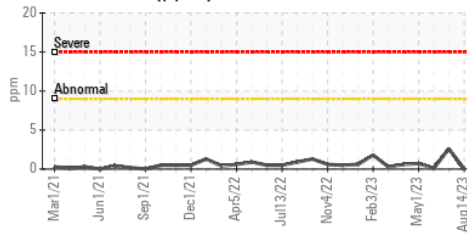
Iron (ppm)



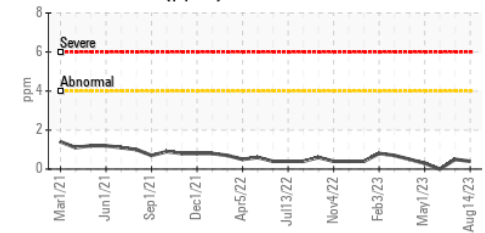
Lead (ppm)



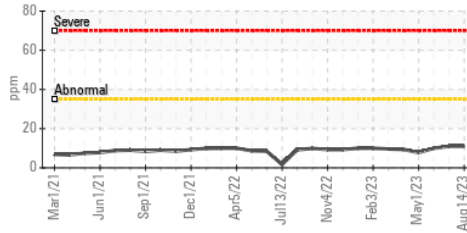
Aluminum (ppm)



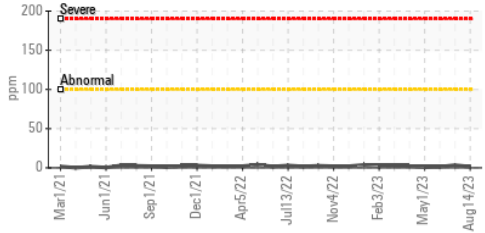
Chromium (ppm)



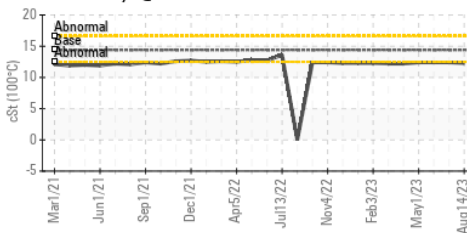
Copper (ppm)



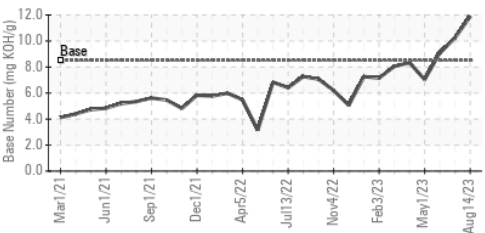
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0082298 **Received** : 18 Aug 2023
Lab Number : 05928410 **Diagnosed** : 21 Aug 2023
Unique Number : 10608357 **Diagnostician** : Don Baldrige
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Magellan Midstream LP - Omaha
 9405 Bennington Road
 Omaha, NE
 US 68122
 Contact: Zach Jones
 zach.jones@magellanlp.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

T:
F: